

Fleet Idle Reduction Perspectives



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SNI Historical Perspective

- 1983 – Rockwell Tripmaster Engine Recording
- 1985 – Driver Incentive Program
- 1986 – Automatic Engine Start
- 1991 – Developed SensorTRACS Vehicle Recording System, Standard on all Trucks
- 1993 – First Genset evaluation
- 1995 – Shape Coolant Storage System Evaluation
- 1997 – Second Genset Evaluation
- 2002 – Webasto Cab Coolers and Airtop Heaters
- 2003 – Heaters Standard on all Trucks
- 2003 – Bergstrom Nite System Test
- 2004 - Expanded Nite System Evaluation
- 2004 - “Super” Insulated Tractor
- 2005 – “Extreme” Insulation Package
- 2005 - CAT MorElectric Evaluation

Driver Incentive Programs

- Share cost incentives through a voluntary bonus program to encourage idle reduction.
- Schneider idle is about $\frac{1}{2}$ the industry average

Positive:

- Low Cost
- Drivers have an option to participate
- Additional pay for drivers
- Reinforce correct behavior

Negative:

- Complex, difficult to manage
- Requires engine recording
- Negative driver perception
- Does not eliminate idling

Diesel Fired Cab Heaters



Small diesel fired furnace for heating cab when engine is off



Positives:

- Offers some cost payback
- Ease of operation
- Compact, don't take up a lot of room
- .07 Gallons/hour fuel use
- Provide more than enough heat in all winter temps
- With rising fuel prices payback is improved

Negatives:

- Drivers leave it on entire time truck is parked
- Some battery usage
- Risk of jump start below 10° F
- Five year stated life is below expectation
- Unknown long term maintenance costs

Automatic Engine Start Systems

- No additional components needed on truck
- Easy to implement
- Simple driver interface
- Negative driver fatigue as drivers wake too often with engine starts
- In hot and cold weather systems run 95% of the time
- After multiple starts systems hit voltage parameter and run constantly for 3 hours
- Little real payback, only work well in moderate temps

Cab and Coolant Heaters



Heat engine coolant keeping engine and cab warm



Positives:

- Heat both engine and cab
- Simple to use
- Compact, don't take up a lot of room

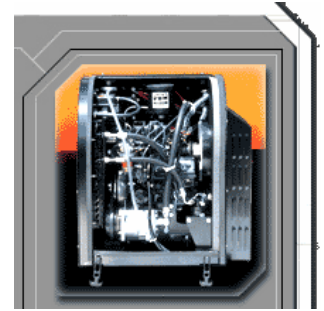
Negatives:

- Battery power requirements
- No cost payback
- Additional complexity, requires tie in to engine and heating systems

Gensets



Diesel powered generators provide cab heating, cooling, electrical, charging and engine heat



Positives:

- Gensets do it all
- Ease of operation for drivers

Negatives:

- Very high cost
- PM interval is half tractor interval
- No cost payback
- .2 gal/hr Vs .75 for engine
- Added maintenance costs

Remote Heating and Cooling Solutions



Off-board heating and cooling solutions. Removable ductwork connects to tractor

Positives:

- Require no separate components on tractor
- Pay as you go
- Offer drivers internet and phone connectivity

Negatives:

- **80% of drivers park at or near customer locations, not truck stops or waysides**
- No infrastructure exists or is likely to exist in near future
- Per hour cost is more than break even

110 Volt Systems

Uses a 110 volt RV Style A/C system to cool truck during engine off. Works off of a plug in or inverter and battery pack.

Positives:

- Provide adequate air conditioning in all temps
- Easy to use
- Experience in RV industry makes it a mature product
- Mobile Solution

Negatives:

- Cost
- No 110 Volt infrastructure and none on horizon
- Battery pack with inverter needed, cost, weight

12 Volt Systems

Uses a 12 volt A/C compressor and battery pack for engine off A/C.

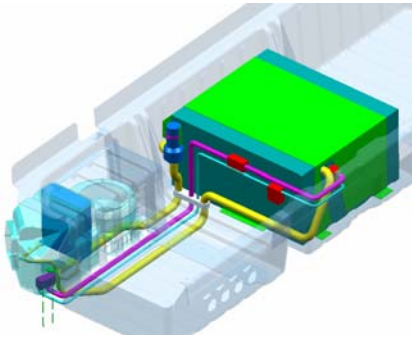
Positive:

- Decent capacity for cooling
- Battery life looks good
- Potential to displace sleeper A/C unit
- *Mobile Solution*

Negative:

- Cost
- Requires additional battery pack
- Limited capacity
- Unknown durability
- Cooling only

Phase Change Storage Systems



Utilizes existing tractor air conditioning to charge a storage system. Discharged during breaks

Positives:

- Can be integrated with bunk A/C
- Mobile solution
- Very low noise

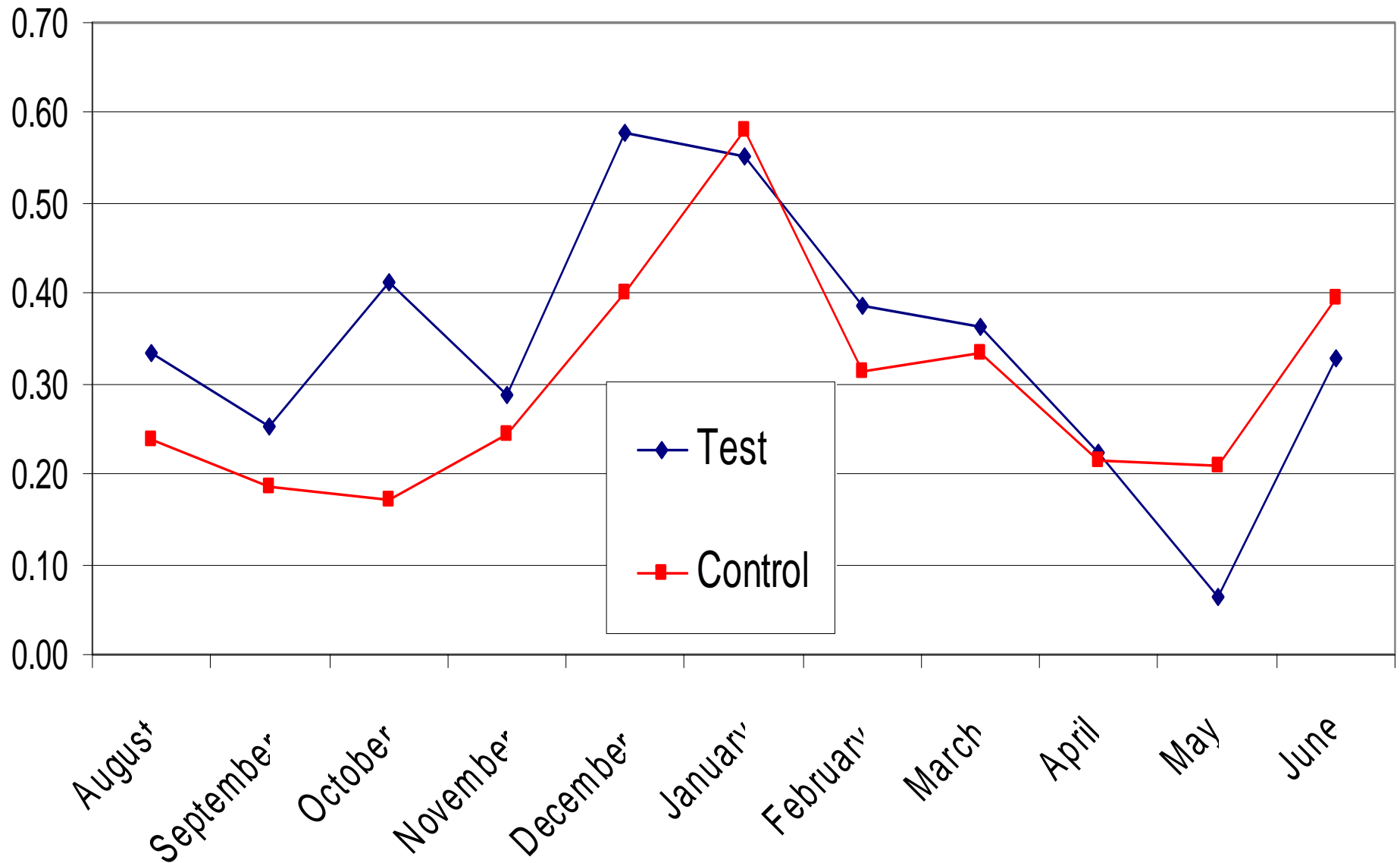
Negatives:

- Capacity, weak performance over 90° F ambient
- Poor tractor insulation capabilities
- Requires cocooning for maximum performance
- High driver interface
- Cost unknown

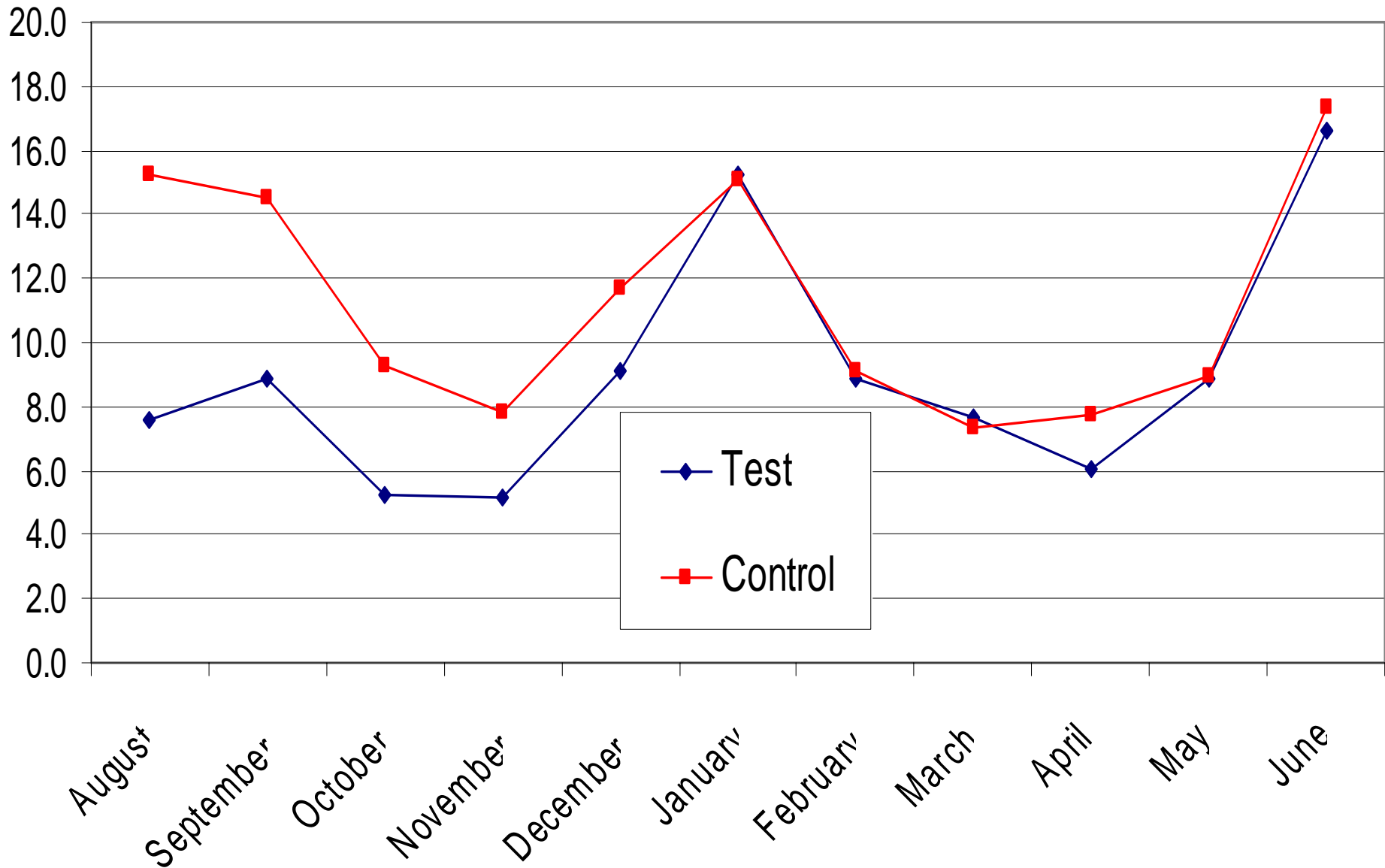
DOE Demo Program

- Cab Heaters, 12 Volt Air Conditioning and Parking Coolers being evaluated.
- Tracking idle %, MPG, reliability, and driver acceptance.
- Use a combination of data acquisition, satellite data, and driver surveys.

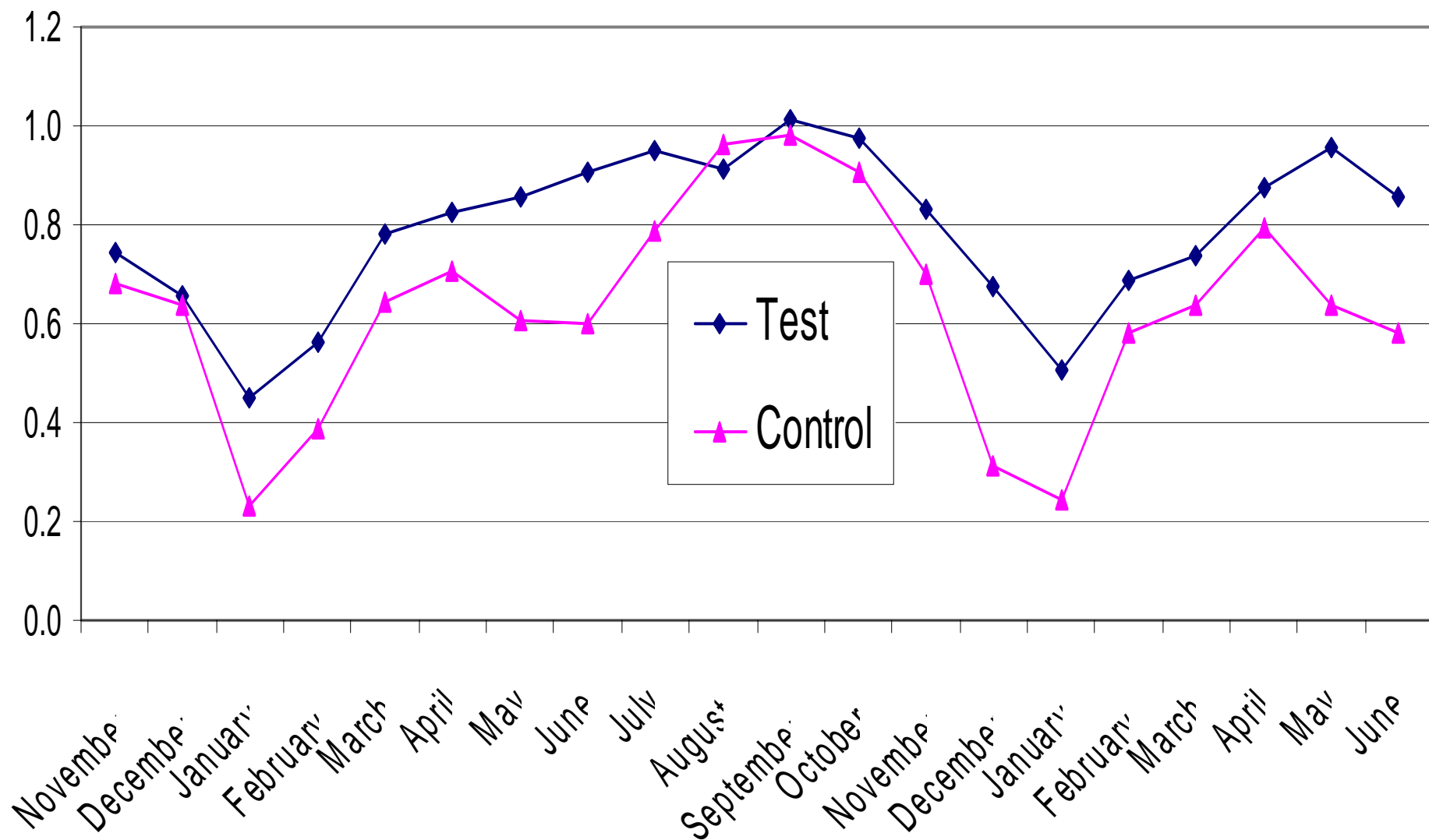
MPG-12v System



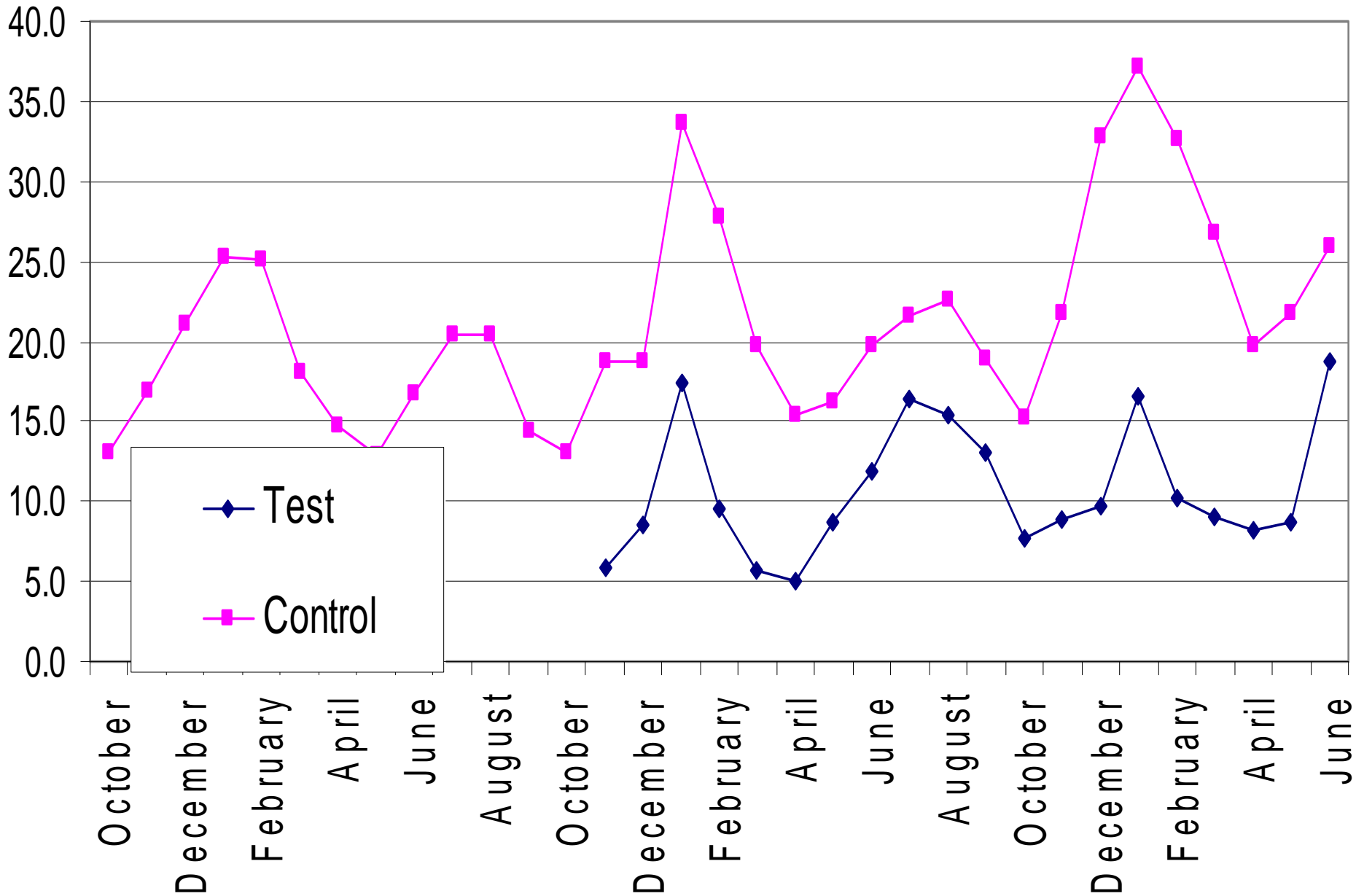
Idle %-12v System



MPG - Cab Heater



Idle % - Cab Heater



Idle-Why were not at 0%

Heaters

- Freezable loads.
- Below 10° F, risk a no-start condition.

Coolers

- Low or no charge, system not ready.
- System is less effective over 85° F.

How do we move forward?

There are no solutions that offer a payback for heating and cooling

Government Support:

- Joint Evaluations – More Support
- Use FET to offset costs of systems
- No FET on idle solutions
- Incentives for more in depth evaluations
- Weight offsets for idle technologies

Industry Support:

- Tractor insulation improvements
- Cost effective, integrated solutions
- More effort on work to find a solution
- Stronger partnerships with fleets

The biggest reason fleets idle is it is the lowest cost option



Questions????????